



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,231	10/14/2003	Manu Gulati	BP3248	4627
34399	7590	11/01/2007		
GARLICK HARRISON & MARKISON			EXAMINER	
P.O. BOX 160727			CHU, WUTCHUNG	
AUSTIN, TX 78716-0727			ART UNIT	PAPER NUMBER
			2619	
			MAIL DATE	DELIVERY MODE
			11/01/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

T/T

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/685,231	GULATI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Wutchung Chu	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Objections*

1. Claim 8 is objected to because of the following informalities: the term "HyperTranspot" is misspelled. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Cremin et al., hereinafter Cremin, (US2002/0018444).

**Regarding claim 1**, Cremin discloses a method and apparatus for multi-lane communication channel with deskewing capability (**see paragraph 21**) comprising:

- a data aligner to receive data from a data transmission link and to align the data into predefined segments for interim storage (**see figure 2 ref223a and paragraph 31 data alignment units**); and
- a buffer (**see figure 8 and ref 801-3 queues**) to receive aligned data from the data aligner for interim storage and to reassemble data output onto a wider data path, the buffer to allow storage of aligned data in wider format (**see paragraph 70 word width expansion unit and figure 2 ref 208**) to maintain sufficient

Art Unit: 2619

bandwidth to account for frequency scaling of received data rate to frequency of the data path and fragmentation of data for alignment onto the data path (**see paragraph 39 the input word expansion unit can only provide information at a data rate sufficient to fill fifteen units**), but in which the buffer to use multiple memory storage devices (**see figure 8 ref801-3 and paragraph 68 FIFO queues**) having a single read port and a single write port (**see paragraph 26a memory having logic that reads and writes data from /to the memory in a manner that is consistent with the operation of a queue**) to write data of predefined segments from the data aligner (**see paragraph 70 a stream of 48-bits words are provided at the receiver output that are identical to the stream of 48 bit words originally presented to the transmitter input**).

**Regarding claim 2**, Cremin teaches the buffer is arranged in arrays formed from the multiple memory storage devices (**see figure 8 ref801-3**).

**Regarding claim 3**, Cremin teaches further including a command control logic to separate commands from data at an input to the data aligner and to process commands to align the data (**see paragraph 57**).

**Regarding claim 4**, Cremin teaches further comprises a data re-aligner at the buffer output, wherein the buffer includes a number of arrays in which data entry may start in any one of the arrays and an orientation bit or bits is to be used to identify the starting array for realignment in the data re-aligner (**see figure 8 ref801-3 and paragraph 68-69**).

**Regarding claim 5**, Cremin teaches further including a meta-data unit to receive meta-data from the command control logic and to use the meta-data to realign the data in the data re-aligner (**see paragraph 68-69**).

**Regarding claim 6**, Cremin teaches further comprising a data fragment collector to collect fragments of data that do not fit into the predefined segment in one clock period and to use the fragment in a next clock period to fit into a next segment (**see paragraph 22**).

**Regarding claims 17-19**, Cremin disclose all the limitations as discussed in the rejection of claims 1-2, 4 and are therefore claims 17-19 are rejected using the same rationales.

***Claim Rejections - 35 USC § 103***

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2619

6. Claims 7-8 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cremin in view of Richter (US2003/0099254).

**Regarding claim 7 and 8**, Cremin discloses all the subject matter of the claimed invention with the exception of the received data is based on SPI-4 protocol, and the received data is based on HyperTransport protocol.

Richter from the same or similar fields of endeavor teaches the use of SPI-4 (**see Richter paragraph 141**) and HyperTransport (**see Richter paragraph 117**). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the SPI-4 and HyperTransport as taught by Richter in the apparatus for multi-lane communication channel with deskewing capability of Cremin in order to provide optimization for a particular system application, providing further performance improvements (**see Richter paragraph 117**).

**Regarding claims 20-21**, Cremin discloses all the limitations as discussed in the rejection of claims 7-8 and are therefore claims 20-21 are rejected using the same rationales.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2619

8. Claim 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cremin.

**Regarding claim 9**, Cremin teaches an integrated circuit comprising:

- a command control unit to receive incoming data from the interface unit and to separate commands from data to process commands to align the data (**see paragraph 57**);

- a data aligner to receive incoming data from the interface unit and to align the incoming data into a predefined segment for interim storage (**see figure 2 ref223a and paragraph 31 data alignment units**); and

a reassembly buffer (**see figure 8 and ref 801-3 queues**) to receive aligned data from the data aligner for interim storage and to reassemble data output onto an internal data path, the reassembly buffer to allow storage of aligned data in wider format (**see paragraph 70 word width expansion unit and figure 2 ref 208**) to maintain sufficient bandwidth to account for frequency scaling of received data rate to frequency of the internal data path and fragmentation of data for alignment onto the internal data path (**see paragraph 35-39**), but in which the reassembly buffer to use multiple memory storage devices (**see figure 8 ref801-3**) having a single read port and a single write port to write data of predefined segments from the data aligner (**see paragraph 70**).

Cremin discloses all the subject matter of the claimed invention with the exception of an interface unit to receive incoming data from a higher frequency data transmission link for use by the integrated circuit.

It is well known in the art at the time the invention was made to provide word width expansion unit which interface incoming data of receiving incoming data from a higher frequency data transmission link for use by the integrated circuit in order to accommodate and cooperate with higher input data rate and enhance system efficiency.

**Regarding claims 10, 12-14,** Cremin disclose all the limitations as discussed in the rejection of claims 2, 4-6 and are therefore claims 10-16 are rejected using the same rationales.

**Regarding claim 11,** Cremin the reassembly buffer is structured having multiple matrices arranged into arrays, in which a width of the individual matrix is determined by the internal data path (see Cremin paragraph 57 and 70).

**Regarding claims 15-16,** Cremin disclose all the limitations as discussed in the rejection of claims 7-8 and are therefore claims 15-16 are rejected using the same rationales.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wu (US2003/0095563)

Lalmiki et al. (US6975324)



Art Unit: 2619

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wutchung Chu whose telephone number is 571 270 1411. The examiner can normally be reached on Monday - Friday 1000 - 1500EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan D. Orgad can be reached on 571 272 7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WC/  
Wutchung Chu

EDAN D. ORGAD  
SUPERVISORY PATENT EXAMINER

*Edan Orgad* 10/29/07